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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,300	09/17/2003	Jae Kwang Park	282.028	4581

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EXAMINER
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CINTINS, IVARS C

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/664,300

Applicant(s)

PARK ET AL.

Examiner

Ivars C. Cintins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 2-13, 18-23, 26 and 28-41 is/are pending in the application.
- 4a) Of the above claim(s) 4, 18-23, 26, 28-35 and 37-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2, 3, 5-13 and 36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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Newly presented claims 37-41 are drawn to a method for making a filter material (i.e. the invention identified as "Group II" in the restriction requirement dated October 6, 2005), and are therefore withdrawn from further consideration as being directed to a non-elected invention.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 36 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. The limitation that the additive is capable of "absorbing" the contaminant (claim 36, line 1) does not appear to be supported by the disclosure originally filed, and hence constitutes **new matter**. The entire specification refers to the additive as an adsorbent for contaminants, not an absorbent for these contaminants.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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Claims 2, 3, 6, 7, 12, 13 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Davydov et al. (U.S. Patent No. 6,585,863; hereinafter "Davydov"). As pointed out in the previous Office action, the reference discloses a filter material for treating a liquid or gaseous fluid (col. 1, line 16), which filter material comprises an ordered mesoporous silica molecular sieve impregnated with iron oxide (see col. 7, lines 5-9; col. 8, line 30; col. 13, lines 15 and 20; and col. 14, line 60); and this iron oxide is inherently capable of bonding to arsenic by sorption, for substantially the same reasons that Applicant's iron oxide exhibits this property.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 8 and 9 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Davydov. As pointed out in the previous Office action, Davydov discloses the claimed invention with the exception of the amount of additive employed (claim 5), and its particles size (claims 8 and 9). However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the recited amount of iron oxide in the reference material, in order to ensure that the resulting product has an adequate amount of photocatalytic properties. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ either powder or granular iron oxide in this reference material, in order to

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ensure that this additive is evenly distributed throughout the mesoporous silica molecular sieve substrate material.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davydov in view of Baker et al. (U.S. Patent No. 6,706,194; hereinafter "Baker"). As pointed out in the previous Office action, Davydov discloses the claimed invention with the exception of the recited additional filter material. Baker discloses removing organic contaminants from a fluid with a catalytic activated carbon, and further teaches that this carbon can be in block form (col. 8, lines 63-66). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of Davydov with an additional organic contaminant removal filter, such as the one disclosed by Baker, in order to provide additional organic contaminant removal capability for this primary reference system.

Applicant's arguments filed April 20, 2006 have been noted and carefully considered but are not deemed to be persuasive of patentability. Applicant argues that neither the transition metal (iron oxide) nor the photoactive semiconductor (titanium dioxide) in the photocatalyst of the Davydov filter material is capable of bonding to the contaminants as required by claim 7. It is pointed out, however, that Davydov clearly discloses a filter material comprising a mesoporous silica molecular sieve (see col. see col. 7, lines 5-9) impregnated with iron oxide (see col. 8, line 30; and col. 13, lines 15 and 20); and therefore, this reference filter material must inherently possess that same properties (e.g. the capability of bonding to a contaminant such as arsenic) as those of the filter material recited in claim 7. The fact that the filter material of Davydov is used

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to treat fluids containing organic compound contaminants, not arsenic contaminants, is not relevant. It is well settled that a recitation with respect to the manner in which a claimed product is intended to be employed (i.e. to bond with contaminants in a fluid) does not differentiate the claimed product from a prior art product satisfying the claimed product limitations. The filter material of Davydov is inherently capable of bonding with a contaminant (e.g. arsenic) in a fluid, as explained above, and this capability is all that is required by the product claims in this application.

Applicant apparently feels that dependent claims 5 and 8-11 should stand or fall with parent claim 7, since no arguments have been presented as to why the additional limitations contained in these claims are sufficient to distinguish them over the references of record. In any event, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the amount of iron oxide recited in claim 5 in the filter material of Davydov, in order to ensure that the resulting product has an adequate amount of photocatalytic properties. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ either powder or granular iron oxide in this reference material, as recited in claims 8 and 9, in order to ensure that this additive is evenly distributed throughout the mesoporous silica molecular sieve substrate material. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the system of Davydov with an additional organic contaminant removal filter such as the one disclosed by Baker, as required by claims 10 and 11, in order to provide additional organic contaminant removal capability for this primary reference system.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to I. Cintins whose telephone number is 571-272-1155. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Duane Smith, can be reached at 571-272-1166.

The centralized facsimile number for the USPTO is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, reading "Ivars C. Cintins". The signature is written in a cursive style with a large, stylized 'I' and 'C'.

**Ivars C. Cintins**  
**Primary Examiner**  
**Art Unit 1724**

I. Cintins  
July 7, 2006